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EXAMINER	
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ART UNIT	PAPER NUMBER
2167	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/754,011	DAY ET AL.	
	Examiner	Art Unit	
	KIMBERLY LOVEL	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,7-10,13,15-19 and 24-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5,7-10,13,15-19 and 24-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This communication is in response to the Amendment filed 12 February 2009.

2. In the Amendment filed 12 February 2009, claims 1, 3-5, 7-10, 13 and 15-19 are stated as pending, claims 20-24 are new and claims 2, 6, 11, 12, 14 are canceled. It is noted however that in set of claims filed with the Amendment on 11 August 2008, claims 20-24 were cancelled. MPEP 714 [R-6] Section (c)(5), labeled "Reinstatement of previously canceled claim," states "A claim which was previously canceled maybe reinstated only by adding the claim as a "new " claim with a new claim number." Since claims 20-24 have been previously canceled, the examiner is renumbering claims 20-24 as 25-29.

3. The prior art rejections made in the previous rejection have been maintained.

4. This action is made Final.

Claim Rejections - 35 USC § 101

5. The rejections of claims 1, 3-5, 7-10, 13 and 15-19 under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter have been withdrawn as necessitated by amendment. The method claims are now tied to a computer, wherein the computer includes a database management system. The computer is construed as representing the necessary hardware.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 3-5, 9, 10, 13, 15, 18, 19 and 20-24 (claims 20-24 have been renumbered as 25-29 for the reasons stated above) are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No 6,757,677 to Pham et al (hereafter Pham) in view of the background of US Patent 6,662,175 to Ghazal et al (hereafter Ghazal) in view of the Bulletin of the Technical Committee on Data Engineering (hereafter Data Engineering).

Referring to claim 1, Pham discloses a method for optimizing a database query in a computer of the type including a database management system, the database query including criteria that references a plurality of tables in order to re-order a result

set generated for the database query, wherein the criteria is one of a GROUP BY clause [group by] or an ORDER BY clause (see abstract and column 3, lines 9-36).

While Pham discloses a query with at least one search condition [where clause], Pham fails to explicitly disclose the further limitations of applying transitive closure analysis to at least one search condition in the query to identify an equivalent field for a field referenced in the criteria; and based on the transitive closure analysis, rewriting the criteria to generate modified criteria to reduce the number of tables referenced thereby by substituting the equivalent field for the field referenced in the criteria to generate modified criteria that references only one table, based on transitive closure analysis. Ghazal discloses query optimization (see column 1, lines 7-9), including the further limitations of applying transitive closure analysis to at least one search condition in the query to identify an equivalent field for a field referenced in the criteria (see column 1, lines 22-36); and based on the transitive closure analysis, rewriting the criteria to generate modified criteria to reduce the number of tables referenced thereby by substituting the equivalent field for the field referenced in the criteria to generate modified criteria, based on transitive closure analysis (see column 1, lines 37-38). While Ghazal discloses referencing only one row (see column 1, lines 37-38), Ghazal fails to disclose referencing only one table. It would have been obvious to one of ordinary skill in the art to apply the concept of referencing only one row in order to reference only one table. One would have been motivated to do so since this is the basic purpose of query rewrite.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the transitive closure disclosed by Ghazal to optimize the query of Pham. One would have been motivated to do so since it is well-known that query optimization improves overall performance which reduces resource utilization (Ghazal: see column 1, lines 7-20).

While the combination of Pham and Ghazal (hereafter Pham/Ghazal) applies the concept of transitive closure to a database query to reduce the number of rows referenced, Pham/Ghazal fails to explicitly disclose wherein the transitive closure reduces the number of tables referenced. Data Engineering discloses the concept of utilizing transitive closure on both single-table and join predicates, including the further limitation of applying the transitive closure to reduce the number of tables referenced [T1.C1=T2.C2 AND T2.C2=T3.C3 will cause the DB2 to generate T1.C1=T3.C3] (see page 7, lines 17-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the transitive closure of Pham/Ghazal which reduces the rows referenced to reduce a number of tables references as in the manner as disclosed by Data Engineering. One would have been motivated to do so in order to improve performance dramatically through the transformation of subqueries to joins.

Referring to claim 3, the combination of Pham/Ghazal and Data Engineering (hereafter Pham/Ghazal/Data) discloses the method according to claim 1, further comprising the step of: determining if the criteria references a first field from a first table and a second field from a second table (Pham et al: see column 3, lines 30-50 – x1 is

considered to represent the first field from the first table; y3 is considered to represent the second field from a second table).

Referring to claim 4, Pham/Ghazal/Data discloses the method according to claim 3, wherein the rewriting step comprises the step of: rewriting the criteria to reference the first field and a third field from the first table, wherein a first search condition in the query searches on a match between the first field and the second field, and a second search condition in the query searches on a match between the second field and the third field, and where applying transitive closure analysis includes determining that the third field is equivalent to the second field in the criteria (Pham et al: see column 5, lines 47-65; Tao: see column 7, lines 10-19; column 8, lines 9-18; and column 8, lines 43-60).

Referring to claim 5, Pham/Ghazal/Data discloses the method according to claim 1, further comprising the step of: determining if the criteria references a plurality of tables (Pham et al: see column 4, line 58 – column 5, line 13).

Referring to claim 9, Pham/Ghazal/Data discloses the method according to claim 1, wherein the database query involves a plurality of join operations and the method further comprises the step of: running the query according to a join order that is based on the modified criteria (Pham et al: see column 6, lines 46-54).

Referring to claim 10, Pham discloses a method of optimizing a database query, the database query including criteria that references a plurality of tables in order to re-order a result set generated for the database query, wherein the criteria is one of a

GROUP BY clause [group by] or an ORDER BY clause (see abstract and column 3, lines 9-36).

While Pham discloses a query with at least one search condition [where clause], Pham fails to explicitly disclose the further limitations of applying transitive closure analysis to at least one search condition in the query to identify an equivalent field for a field referenced in the criteria; and rewriting the criteria, based on the transitive closure analysis, to generate a modified criteria by substituting the equivalent field for the field referenced in the criteria , wherein the criteria references a plurality of tables and the modified criteria references a single table; said modified criteria operating to re-order a result set of the database query and avoid creating a temporary file during operation. Ghazal discloses query optimization (see column 1, lines 7-9), including the further limitations of applying transitive closure analysis to at least one search condition in the query to identify an equivalent field for a field referenced in the criteria (see column 1, lines 22-36); and rewriting the criteria, based on the transitive closure analysis, to generate a modified criteria by substituting the equivalent field for the field referenced in the criteria , wherein the criteria references a plurality of tables and the modified criteria references a single table; said modified criteria operating to re-order a result set of the database query and avoid creating a temporary file during operation (see column 1, lines 37-38). While Ghazal discloses referencing only one row (see column 1, lines 37-38), Ghazal fails to disclose referencing only one table. It would have been obvious to one of ordinary skill in the art to apply the concept of referencing only one row in order

to reference only one table. One would have been motivated to do so since this is the basic purpose of query rewrite.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the transitive closure disclosed by Ghazal to optimize the query of Pham. One would have been motivated to do so since it is well-known that query optimization improves overall performance which reduces resource utilization (Ghazal: see column 1, lines 7-20).

While the combination of Pham and Ghazal (hereafter Pham/Ghazal) applies the concept of transitive closure to a database query to reduce the number of rows referenced, Pham/Ghazal fails to explicitly disclose wherein the transitive closure reduces the number of tables referenced. Data Engineering discloses the concept of utilizing transitive closure on both single-table and join predicates, including the further limitation of applying the transitive closure to reduce the number of tables referenced [T1.C1=T2.C2 AND T2.C2=T3.C3 will cause the DB2 to generate T1.C1=T3.C3] (see page 7, lines 17-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the transitive closure of Pham/Ghazal which reduces the rows referenced to reduce a number of tables references as in the manner as disclosed by Data Engineering. One would have been motivated to do so in order to improve performance dramatically through the transformation of subqueries to joins.

Referring to claim 13, Pham discloses a method for optimizing a database query in a computer of the type including a database management system, the

database query involving a plurality of join operations and a plurality of search conditions, including criteria that references a plurality of tables in order to re-order a result set, wherein the criteria is one of a GROUP BY clause [group by] or an ORDER BY clause (see abstract and column 3, lines 9-36).

While Pham discloses a query with at least one search condition [where clause], Pham fails to explicitly disclose the further limitations of applying transitive closure analysis to a plurality of search conditions in the query to determine a subset of equivalent search fields; and rewriting a criteria to generate a set of respective modified criteria that each reference one or more equivalent search fields; and selecting join order from among a plurality of join orders for the plurality of join operations using at least one of the set of respective modified criteria. Ghazal discloses query optimization (see column 1, lines 7-9), including the further limitations of applying transitive closure analysis to a plurality of search conditions in the query to determine a subset of equivalent search fields (see column 1, lines 22-36); and rewriting a criteria to generate a set of respective modified criteria that each reference one or more equivalent search fields; and selecting join order from among a plurality of join orders for the plurality of join operations using at least one of the set of respective modified criteria (see column 1, lines 37-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the transitive closure disclosed by Ghazal to optimize the query of Pham. One would have been motivated to do so since it is well-known that query

optimization improves overall performance which reduces resource utilization (Ghazal: see column 1, lines 7-20).

While the combination of Pham and Ghazal (hereafter Pham/Ghazal) applies the concept of transitive closure to a database query to reduce the number of rows referenced, Pham/Ghazal fails to explicitly disclose wherein the transitive closure reduces the number of tables referenced. Data Engineering discloses the concept of utilizing transitive closure on both single-table and join predicates, including the further limitation of applying the transitive closure to reduce the number of tables referenced [T1.C1=T2.C2 AND T2.C2=T3.C3 will cause the DB2 to generate T1.C1=T3.C3] (see page 7, lines 17-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the transitive closure of Pham/Ghazal which reduces the rows referenced to reduce a number of tables references as in the manner as disclosed by Data Engineering. One would have been motivated to do so in order to improve performance dramatically through the transformation of subqueries to joins.

Referring to claim 15, Pham/Ghazal/Data discloses the method according to claim 13; further comprising the step of: running the query according to a join order, the join order determined by selecting one of the set of respective modified criteria (Pham et al: see column 14, lines 42-61).

Referring to claim 18, Pham/Ghazal/Data discloses the method according to claim 17, further comprising the step of: running the query according to a join order, the

join order determined by selecting one of the subset of respective modified criteria (Pham et al: see column 13, line 41 – column 14, line 18).

Referring to claim 19, Pham/Ghazal/Data discloses method according to claim 13, further comprising the steps of:

performing cost analysis on each of the set of respective modified criteria (see column 15, lines 20-25); and

running the query according to a join order, the join order determined based on the cost analysis (see column 15, lines 20-25).

Referring to claim 20 (renumbered as 25), Pham/Ghazal/Data discloses a program product comprising a recordable physical, computer readable storage medium bearing the program code (Pham: see column 16, line 65 – column 17, line 27). Therefore, the program product of claim 20 is rejected on the same grounds as the method of claim 1.

Referring to claim 21 (renumbered as 26), Pham/Ghazal/Data discloses the program product of claim 20, wherein the program code is further configured to: run the query according to a join order that is based on the modified criteria (Pham et al: see column 6, line 46-54 – modifying the group-by clause).

Referring to claim 22 (renumbered as 27), Pham/Ghazal/Data discloses a program product comprising a recordable physical, computer readable storage medium bearing the program code (Pham: see column 16, line 65 – column 17, line 27). Therefore, the program product of claim 22 is rejected on the same grounds as the method of claim 13.

Referring to claim 23 (renumbered as 28), Pham/Ghazal/Data discloses the program product of claim 22, wherein the program code is further configured to: run the query according to a join order that is based on the modified criteria (Pham et al: see column 6, line 46-54 – modifying the group-by clause).

Referring to claim 24 (renumbered as 29), Pham/Ghazal/Data discloses an apparatus comprising a processor (Pham et al: see column 16, lines 57-60) coupled to a memory (Pham et al: see column 16, lines 53-57 – storage unit). Therefore, the apparatus of claim 24 is rejected on the same grounds as the method of claim 1.

9. Claims 7-8 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No 6,757677 to Pham et al in view of US Patent No 6,662,175 to Ghazal et al in view of the Bulletin of the Technical Committee on Data Engineering as applied respectively to claims 1 and 13 above, and further in view of US Patent No 5,598,559 to Chaudhuri.

Referring to claim 7, Pham/Ghazal/Data discloses a method for optimizing a database query. However, Pham/Ghazal/Data fails to explicitly disclose the further limitation of building an index over a column of the one table. Chaudhuri discloses a method for optimizing queries having group-by operations (see abstract), including the further limitation of building an index over a column of the one table (see column 7, line 55 – column 8, line 26).

It would have been obvious to one of ordinary skill in the at the time the invention was made to use Chaudhuri's step of indexing the tables as a subcomponent to the method for the reordering of complex SQL queries involving group-bys and joins. One would have been motivated to do so in order to improve efficiency concerning the processing of complex SQL queries that contain Group-bys.

Referring to claim 8, Pham/Ghazal/Data discloses a method for optimizing a database query. However, Pham/Ghazal/Data fails to explicitly disclose the further limitation of building an index over more than one column of a table among a plurality of tables. Chaudhuri discloses a method for optimizing queries having group-by operations (see abstract), including the further limitation of building an index over more than one column of a table among a plurality of tables (see column 7, line 55 – column 8, line 26).

It would have been obvious to one of ordinary skill in the at the time the invention was made to use Chaudhuri's step of indexing the tables as a subcomponent to the method for the reordering of complex SQL queries involving group-bys and joins. One would have been motivated to do so in order to improve efficiency concerning the processing of complex SQL queries that contain Group-bys.

Referring to claim 16, Pham/Ghazal/Data discloses a method for optimizing a database query. However, Pham/Ghazal/Data fails to explicitly disclose the further limitation of identifying a subset of the respective modified criteria that reference a single, respective table and for which an index to that table exists. Chaudhuri discloses a method for optimizing queries having group-by operations (see abstract), including the

further limitation of identifying a subset of the respective modified criteria that reference a single, respective table and for which an index to that table exists (see column 4, line 60 – column 5, line 25 and column 7, line 55 – column 8, line 26).

It would have been obvious to one of ordinary skill in the at the time the invention was made to use Chaudhuri's step of identifying subsets as a subcomponent to the method for the reordering of complex SQL queries involving group-bys and joins. One would have been motivated to do so in order to improve efficiency concerning the processing of complex SQL queries that contain Group-bys.

Referring to claim 17, Pham/Ghazal/Data discloses a method for optimizing a database query. However, Pham/Ghazal/Data fails to explicitly disclose the further limitation of identifying a subset of the respective modified criteria that reference a single, respective table and for which an index is to be created. Chaudhuri discloses a method for optimizing queries having group-by operations (see abstract), including the further limitation of identifying a subset of the respective modified criteria that reference a single, respective table and for which an index is to be created (see column 4, line 60 – column 5, line 25 and column 7, line 55 – column 8, line 26).

It would have been obvious to one of ordinary skill in the at the time the invention was made to use Chaudhuri's step of identifying subsets as a subcomponent to the method for the reordering of complex SQL queries involving group-bys and joins. One would have been motivated to do so in order to improve efficiency concerning the processing of complex SQL queries that contain Group-bys.

Response to Arguments

10. Applicant's arguments filed 12 February 2009 have been fully considered but they are not persuasive.

11. Referring to Applicant's arguments on page 9 of the Remarks, the Applicant states "Furthermore, the Examiner makes a conclusory statement that it would have been obvious to apply the concept of referencing only one row in order to reference only one table. However, one of ordinary skill in the art would know that there is substantial difference between referencing rows of a table and referencing tables generally. Moreover the Examiner has failed to provide any rationale for this statement … It is only with hindsight and benefit of Applicant's disclosure that the Examiner could assert this motivation.

The examiner respectfully disagrees. The examiner does not consider there to be a difference between referencing rows of a table or referencing different tables since the concept of dividing a database into a plurality of tables is known in the art. Furthermore, the intentions of transitive closure in general is to reduce the expression to the smallest possible relational space. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's

disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

12. Referring to Applicant's arguments on page 10 of the Remarks, the Applicant states "… Ghazal contains two occurrences of the term transitive closure. The first occurrence is in the passage cited by the Examiner in the background of the disclosure. Here Ghazal merely states that transitive closure is one of a number of syntactic or algebraic transformations that may be used for query transformation … This passage certainly fails to disclose or even suggest applying transitive closure analysis to at least one search condition in the query to identify an equivalent field referenced in the criteria and using the analysis to rewrite the criteria to reduce the number of tables referenced thereby." The examiner respectfully disagrees. Ghazal teaches the use of transitive closure to rewrite the query to provide query optimization. Furthermore, the intentions of transitive closure in general is to reduce the expression to the smallest possible relational space.

13. Referring to Applicant's argument on page 11 of the Remarks, the Applicant states "The Examiner further contends that Data Engineering allegedly discloses the concept of using transitive closure on both single-table and join predicates, including applying transitive closure to reduce the number of tables referenced on page 7, lines 17-23. The Examiner's interpretation of this passage is flawed." The examiner respectfully disagrees. In the original query, tables T1, T2 and T3 are referenced. After transitive closure is applied, only two tables are referenced. Therefore, the number of tables being referenced has been reduced.

14. Referring to Applicant's arguments on page 12 of the Remarks, the Applicant states "Furthermore, none of the references disclose transitive closure being used with a GROUP BY or an ORDER BY clause." Group by and Order by clauses are merely specific types of search criteria. Therefore, the examiner has used a combination of art to teach why it would have been obvious to apply the transformation to these clauses.

15. Referring to Applicant's Remarks on page 15 of the remarks in regards to claims 7, 8, 16 and 17, the Applicants argues that Chaudhuri fails to disclose building an index over a column of the one table. The examiner respectfully disagrees. A relational index is an index of a column.

16. The rejections of claims 3-5, 9, 10, 13 and 15-23 have been maintained for the reasons stated above.

Conclusion

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY LOVEL whose telephone number is (571)272-2750. The examiner can normally be reached on 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John R. Cottingham/
Supervisory Patent Examiner, Art Unit 2167

/Kimberly Lovel/
Examiner
Art Unit 2167

23 April 2009
/KL/